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EXAMINER	
MAURO JR, THOMAS J	

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/628,532	DORBOLO, RICCARDO G.	
	Examiner	Art Unit	
	Thomas J. Mauro Jr.	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed on June 14, 2004. Claims 13-38 remain pending and are presented for further examination. A formal action on the merits of claims 13-38 follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 13-15,19-22, 28-33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghai et al. (U.S. 6,389,024) in view of Gerstel et al. (U.S. 6,256,293) and Pomp et al. (U.S. 6,097,515).

Regarding claim 13, Ghai teaches the invention substantially as claimed, a method for associating routing parameters for a switch with line cards serviced by the switch comprising: programming a redirection memory to associate a routing parameter set in a routing memory for a switch with a first line card, the routing parameter set including a plurality of routing parameters to be provided to the switch to service the first line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. first line card]**.

Ghai fails to teach reprogramming the redirection memory to associate the routing parameter set, necessary to service the second line card, in the routing memory with the second line card in response to an event initiating activation of a second line card in place of the first line card. Gerstel, however, teaches an event initiating activation of a second line card in place of the first line card **[Gerstel -- Col. 2 lines 53-54 – Second, i.e. spare, line card is activated upon failure of another line card, i.e. event]**.

In addition, Pomp discloses a switchable optical network unit which permits automatic activation and configuration of different line cards, i.e. second line card, by the controller, which in turn causes provisioning data to be loaded to provide the necessary information the controller needs to route data to this new, i.e. second, line card **[Pomp -- Col. 11 lines 65-67 – Col. 12 lines 1-11 and lines 46-51 and Col. 15 lines 19-23, lines 38-49 and lines 55-62 – Programmed memory of processor in controller is updated with provisioning data to allow data to be routed to second line card]**.

Both Gerstel and Pomp teach methods for redirecting and reconfiguring switches and their associated line cards.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the reprogramming or reconfiguring of a programmed memory to associate switching of data with various line cards, as taught by Pomp in response to an event initiating activation of a second line card, as taught by Gerstel into the invention of Ghai, in order to provide fault-tolerance in a network to limit down time which is flexible to change or reconfigure routing parameters in addition to providing rapid restoration of interrupted services, i.e. due to a fault **[Pomp -- Col. 5 lines 42-47]**.

Regarding claim 14, Ghai-Gerstel-Pomp teach the invention substantially as claimed, wherein the event is a failure of the first line card **[Gerstel -- Col. 2 lines 53-61 – Failed line card, i.e. event, causes activation of a spare card]**.

Regarding claim 15, Ghai-Gerstel-Pomp teach the invention substantially as claimed, further comprising: programming the redirection memory to associate a second routing parameter set in the routing memory with the second line card, the second routing parameter set including a plurality of second routing parameters to be provided to the switch to service the second line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. second line card]**; and in response to the event initiating activation of the second line card in place of the first line card **[Gerstel -- Col. 2 lines 53-54 – Event is a failed line card]**, reprogramming the redirection memory to associate the second routing parameter set, necessary to service the first line card, with the first line card **[Pomp -- Col. 11 lines 65-67 – Col. 12 lines 1-11 and lines 46-51 and Col. 15 lines 19-23, lines 38-49 and lines 55-62 – Programmed memory of processor in controller is updated with provisioning data to allow data to be routed to second line card]**.

Regarding claim 19, Ghai-Gerstel-Pomp teach the invention substantially as claimed, wherein the redirection memory comprises a programmable table storing associations between line cards serviced by the switch and the routing parameter sets in the routing memory for the

switch **[Ghai -- Figure 2, Col. 3 lines 63-67 and Col. 4 lines 1-20 – In memory is stored a routing table which provides the necessary routing information and instructions to handle incoming data and requests]**.

Regarding claim 20, Ghai teaches the invention substantially as claimed, the system comprising: a computer-readable medium; and software stored on the computer-readable medium **[Ghai -- Col. 3 lines 45-50 – In order for the host computer to run the software used to monitor and control the system, the code for the software must be stored on a computer-readable medium. Therefore, the reference implicitly teaches the above computer-readable medium limitation]**. The remaining limitations in the claim are similar to the limitations of claim 13 above. Therefore, claim 20 is rejected under the same rationale.

Regarding claims 21 and 22, these are system claims corresponding to the method claimed in claims 14 and 15. They have similar limitations; therefore, claims 21 and 22 are rejected under the same rationale.

Regarding claim 28-30, these are system claims corresponding to the method claimed in claims 13-15. They have similar limitations; therefore, claims 28-30 are rejected under the same rationale.

Regarding claim 31, Ghai teaches the invention substantially as claimed, the system comprising: logic encoded in media to execute steps **[Ghai -- Col. 3 lines 45-50 – Software**

used to execute the system is required to have code, i.e. logic, stored on a computer-readable medium]. The remaining limitations in the claim are similar to the limitations of claim 13 above. Therefore, claim 31 is rejected under the same rationale.

Regarding claim 32-33 and 37, these are logic claims corresponding to the method claimed in claims 14-15 and 19. They have similar limitations; therefore, claims 32-33 and 37 are rejected under the same rationale.

4. Claims 16-18, 23-25 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghai et al. (U.S. 6,389,024), Gerstel et al. (U.S. 6,256,293) and Pomp et al. (U.S. 6,097,515), as applied to claims 13, 20 and 31 above respectively, in view of Madonna et al. (U.S. 5,598,409).

Regarding claim 16, Ghai-Gerstel-Pomp teach the invention substantially as claimed, as aforementioned in claim 13 above, but fail to explicitly teach the routing parameters comprise instructions, instruction sets and an instruction memory.

Madonna, however, teaches, wherein the routing parameters comprise instructions **[Madonna -- Col. 6 lines 10-12 – Port instructions]**, the routing parameter set comprises an instruction set **[Madonna -- Col. 6 lines 10-11 – Set is just a grouping of instructions, i.e. instructions as to how to control a port]** and the routing memory comprises an instruction memory **[Madonna -- Col. 6 line 12 – Instructions are stored in memory]**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the instructions, instruction sets and instruction memory as taught by Madonna into the invention of Ghai-Gerstel-Pomp in order to provide the necessary code or instructions to the switch for carrying out its switching functions and for properly routing data to the proper line card and destination port.

Regarding claims 17 and 18, Ghai-Gerstel-Madonna teach the invention substantially as claimed, as aforementioned in claims 16 and 17 above respectively, however fail to explicitly teach a synchronous switch, specifically, a TSI.

Pomp, however, teaches a synchronous switch, specifically, a time slot interchange (TSI) **[Pomp -- Col. 9 lines 52-67 – TSI, which is a synchronous switch]**.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate and use the synchronous switch and time slot interchanger (TSI), as taught by Pomp into the invention of Ghai-Gerstel-Madonna, in order to provide improved efficiency and use of bandwidth through-put within the switch.

Regarding claim 23, this is a system claim corresponding to the method claimed in claim 16. It has similar limitations; therefore, claim 23 is rejected under the same rationale.

Regarding claims 24 and 25, these are system claims corresponding to the method claimed in claims 17 and 18. They have similar limitations; therefore, claims 24 and 25 are rejected under the same rationale.

Regarding claim 34, this is a logic claim corresponding to the method claimed in claim 16. It has similar limitations; therefore, claim 34 is rejected under the same rationale.

Regarding claims 35 and 36, these are logic claims corresponding to the method claimed in claims 17 and 18. They have similar limitations; therefore, claims 35 and 36 are rejected under the same rationale.

5. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghai et al. (U.S. 6,389,024), in view of Galles et al. (U.S. 5,721,819), Madonna et al. (5,598,409) and Bartholomew et al. (U.S. 6,147,988).

Regarding claim 26, Ghai teaches the invention substantially as claimed, a redirection memory operable to selectively associate **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. first line card]** a disparate one of the plurality of line cards **[Ghai -- Col. 3 lines 57-58]**. Ghai fails to teach a time slot interchanger (TSI) operable to switch traffic between time slots, an instruction memory comprising a plurality of

instruction sets comprised of a plurality of instructions and a controller to reprogram the redirection memory to change associations with the line cards.

Bart, however, teaches a time slot interchanger to switch traffic between interface units **[Bartholomew -- Col. 6 lines 28-38 and Col. 10 lines 24-27 – Time slot interchanger routes information to and from the interface units]**.

In addition, Madonna teaches an instruction memory **[Madonna -- Col. 6 line 12 – Instructions are stored in memory]** comprising a plurality of instruction sets **[Madonna -- Col. 6 lines 10-11 – Set is just a grouping of instructions, i.e. instructions as to how to control a port]** comprised of a plurality of instructions **[Madonna -- Col. 6 lines 10-12 – Port instructions]**.

Furthermore, Galles teaches a controller to reprogram the redirection memory in the event of a fault occurring **[Galles -- Col. 11 lines 55-65 and Col. 21 lines 64-67 – Col. 22 lines 1-6]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the time slot interchanger (Bartholomew), instruction memory containing instructions (Madonna) and the reprogramming and reconfiguring of routing table, i.e. memory (Galles), as taught by Bartholomew, Madonna and Galles into the invention of Ghai, in order to: provide fault-tolerance in a network to limit down time which is flexible to change or reconfigure routing parameters, provide code or instructions to the switch for carrying out the necessary functions, and improve efficiency and use of bandwidth through-put within the switch

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghai et al. (U.S. 6,389,024), Galles et al. (U.S. 5,721,819), Madonna et al. (5,598,409) and Bartholomew et al. (U.S. 6,147,988), as applied to claim 26 above, in view of Gerstel et al. (U.S. 6,256,293).

Regarding claim 27, Ghai-Galles-Madonna-Bartholomew teach the invention substantially as claimed, as aforementioned in claim 26 above, comprising: the redirection memory programmed to associate a first instruction set with a working line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. first line card]** and a second instruction set with a protect line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. second line or protect card]**; and the controller operable to reprogram the redirection memory to associate the first instruction set with the protect line card and the second instruction set with the working line card **[Galles -- Col. 11 lines 55-65 and Col. 21 lines 64-67 – Col. 22 lines 1-6 – Routing tables are reprogrammed to associate the various nodes with the new route]**.

Ghai-Galles-Madonna-Bartholomew, fail to teach the activation of the second line card in place of the first line card in response to failure of the first line card.

Gerstel, however, teaches that the second line card, i.e. spare line card, is activated in response to a line card failing **[Gerstel -- Col. 2 lines 53-54 – Event is a failed line card]**.

Both Gerstel and Galles teach methods for redirecting packets around faults or failures that occur in a routing system.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate activating a second line card in place of a first line card in response to a failed line card, as taught by Gerstel into the invention of Ghai-Galles-Madonna-Bartholomew, in order to provide fault-tolerance in a network to limit down time.

7. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghai et al. (U.S. 6,389,024) in view of Gerstel et al. (U.S. 6,256,293), Pomp et al. (U.S. 6,097,515), Madonna et al. (5,598,409) and Bartholomew et al. (U.S. 6,147,988).

Regarding claim 38, Ghai teaches the invention substantially as claimed, a method comprising:

programming a redirection memory to associate a routing parameter set in a routing memory for a switch with a first line card, the routing parameter set including a plurality of routing parameters to be provided to the switch to service the first line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e. first line card]**;

programming the redirection memory to associate a second routing parameter set in the routing memory with the second line card, the second routing parameter set including a plurality of routing parameters to be provided to the switch to service the second line card **[Ghai -- Figure 2, Col. 3 lines 57-67 and Col. 4 lines 1-20 – A routing table, containing routing parameters, is stored within memory which handles service requests for the line cards, i.e.**

second line card]; and a programmable table storing associations between line cards serviced by the switch and the routing parameter sets in the routing memory for the switch **[Ghai -- Figure 2, Col. 3 lines 63-67 and Col. 4 lines 1-20 – In memory is stored a routing table which provides the necessary routing information and instructions to handle incoming data and requests]**.

Ghai fails to teach reprogramming the redirection memory to associate the routing parameter set, necessary to service the second line card, in the routing memory with the second line card in response to an event initiating activation of a second line card in place of the first line card and reprogramming the redirection memory to associate the second routing parameter set, necessary to service the first line card, with the first line card.

In addition, Ghai fails to teach the routing parameters comprise instructions, instruction sets and an instruction memory, a synchronous switch and a time slot interchanger (TSI).

Gerstel, however, teaches an event initiating activation of a second line card in place of the first line card **[Gerstel -- Col. 2 lines 53-54 – Second, i.e. spare, line card is activated upon failure of another line card, i.e. event]** and wherein the event is a failure of the first line card **[Gerstel -- Col. 2 lines 53-61 – Failed line card, i.e. event, causes activation of a spare card]**.

In addition, Pomp discloses a switchable optical network unit which permits automatic activation and configuration of different line cards, i.e. second line card, by the controller, which in turn causes provisioning data to be loaded to provide the necessary information the controller needs to route data to this new, i.e. second, line card **[Pomp -- Col. 11 lines 65-67 – Col. 12 lines 1-11 and lines 46-51 and Col. 15 lines 19-23, lines 38-49 and lines 55-62 – Programmed memory of processor in controller is updated with provisioning data to allow data to be routed to**

second line card]. Furthermore, Pomp teaches a synchronous switch, specifically, a time slot interchange (TSI) **[Pomp -- Col. 9 lines 52-67 – TSI, which is a synchronous switch]**.

In addition, Madonna further teaches the routing parameters comprise instructions **[Madonna -- Col. 6 lines 10-12 – Port instructions]**, the routing parameter set comprises an instruction set **[Madonna -- Col. 6 lines 10-11 – Set is just a grouping of instructions, i.e. instructions as to how to control a port]** and the routing memory comprises an instruction memory **[Madonna -- Col. 6 line 12 – Instructions are stored in memory]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the reprogramming or reconfiguring of a programmed memory to associate switching of data with various line cards along with a synchronous switch and TSI, as taught by Pomp in response to an event initiating activation of a second line card, as taught by Gerstel and an instruction memory containing instructions, as taught by Madonna into the invention of Ghai, in order to: provide fault-tolerance in a network to limit down time which is flexible to change or reconfigure routing parameters in addition to providing rapid restoration of interrupted services, i.e. due to a fault **[Pomp -- Col. 5 lines 42-47]**, provide the necessary code or instructions to the switch for carrying out its switching functions and for properly routing data to the proper line card and destination port, and improve efficiency and use of bandwidth through-put within the switch.

Response to Arguments

8. Applicant's arguments with respect to claims 13, 20, 28, 31 and 38 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's arguments filed June 14, 2004 have been fully considered but they are not persuasive.

(A) Applicant contends that there is no motivation to combine the references of Gerstel, Madonna, Bartholomew and Galles.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Motivation to combine Gerstel, namely, to provide fault-tolerance in a network to limit down time, is knowledge that is generally available to one of ordinary skill in the art. Similarly, motivation to combine Madonna, namely, to provide the necessary code or instructions to

the switch for carrying out its switching functions and for properly routing data to the proper line card and destination port, is suggested implicitly within the reference of Ghai, as there needs to be instructions to carry out the forwarding of packets to proper line cards. In addition, motivation to combine Bartholomew, namely, to improve efficiency and use of bandwidth throughput within a switch, is knowledge available to a person of ordinary skill in the art of packet routing/switching. Finally, motivation to combine Galles, namely, the reprogramming and reconfiguring of routing table, i.e. memory, is both implicitly taught and that of common knowledge to one of ordinary skill in the art, as providing flexibility and the ability to limit down time by changing parameters is suggested and desired in the main reference of Ghai.

(B) Applicant contends that Galles fails to teach a controller operable to reprogram the redirection memory to change associations of the instruction sets with the line cards, whereas claim 26 calls for this limitation.

In response to argument (B), Examiner asserts that the Galles reference is introduced to teach reprogramming of a redirection memory which is associated with line cards, in the event of a fault occurring. See Galles, Col. 11 lines 55-65 and Col. 21 lines 64-67 – Col. 22 lines 1-6. Ghai, on the other hand, discloses a redirection memory to association a plurality of line cards with various routing parameters, i.e. instruction sets. See Ghai, Col. 3 lines 57-67 and Col. 4 lines 1-20. Thus, taken in combination, Ghai teaches

everything except the reprogramming of the redirection memory in the event of a fault. Galles, however, cures this deficiency. Thereby, the combination does in fact teach the reprogramming of the redirection memory to association instructions, i.e. routing parameters, with line cards. Thus, the Examiner accordingly demurs to this assertion.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Steele, Jr. et al. (U.S. 6,791,939) discloses a method and system for dynamic generation of deadlock free routings in the event of a fault.

- Kidder et al. (U.S. 6,715,097) discloses a system and method for hierarchically management faults which includes activating a spare line card for routing.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Mauro Jr. whose telephone number is 703-605-1234. The examiner can normally be reached on M-F 8:00a.m. - 4:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJM
October 4, 2004

William C. Vaughn
Primary Examiner
Art Unit 2143